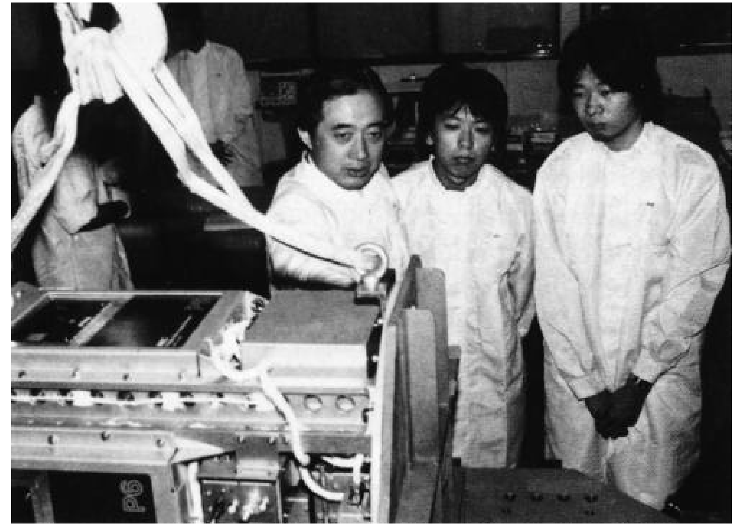
G-005

3

Customer: The Asahi Shimbun;
Shigeru Kimura
Payload Mgr: Shigeru Kimura
NASA Tech Mgr: Lawrence R. Thomas
Mission: STS-6, April 4, 1983

Over 17,000 ideas from Japanese scientists, university professors, engineers, and students flooded Tokyo's Asahi Shimbun newspaper after it solicited themes for a GAS payload. The winning entry came from two high school boys. Their suggestion? Making snow in microgravity. Since a Japanese physicist had produced the first artificial snow on Earth, it seemed appropriate to newspaper editor Shigeru Kimura that Japan crystallize the first artificial snow in space. Executing this task in the small volume of a GAS container required the collaboration of engineering and scientific experts. Before flight, scientists could only guess what shape flakes would take in the absence of gravity—possibly symmetrical, maybe even spherical.



(L to R) The late Shigeru Kimura, Asahi Shimbun's payload manager, with the students who suggested making snowflakes in space, Toshio Agawa and Haruhiko Oda.

G-049

4

Customer: U.S. Air Force Academy;
General Robert E. Kelley
Payload Mgr: Maj. John E. Hatlelid
NASA Tech Mgr: Joseph Ducosin
Mission: STS-6, April 4, 1983

Air Force academy cadets in Colorado Springs designed research and development projects for the Shuttle and then marketed them to their instructor in a program management course based around the Academy's first GAS container. The cadets behind two of the experiments in G-049 were looking to the day when structures would be built in space. One such experiment on metal beam joining demonstrated that beams could be soldered in space. Another on foamed metal (a metal in which a significant amount of gas bubbles are suspended) took a dense piece of metal and foamed it into a rigid metallic sponge. This technique could someday be used to produce structural rods and bars in space, thus reducing the cost of shipping building materials into space. The cadets' other experiments explored micro-organism development, metal alloys, electroplating, and metal purification. All in all, over 450 cadets were exposed to space science through this single GAS payload.

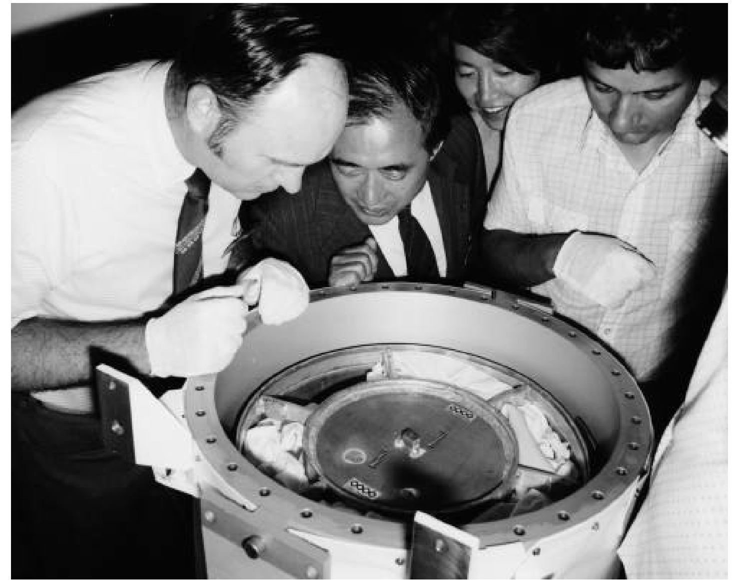
U.S. Air Force Academy cadets prepared G-049 for flight.

G-381

5

Customer: George W. Park Seed Co.; George B. Park, Jr.
Payload Mgr: Dr. James A. Alston
NASA Tech Mgr: Herbert E. Foster
Mission: STS-6, April 4, 1983

A man with a vision, George B. Park, Jr., realized that future space station inhabitants may need to grow their own food. As vice president of the George W. Park Seed Company, Park wanted to learn how to package seeds for space shipment. His researchers packed 25 pounds of fruit and vegetable seeds into G-381, some in simple dacron bags, others in sealed plastic pouches. Within the container were two compartments—one holding the Earth's atmosphere, the other vented compartment was exposed to the vacuum, severe temperatures, and radiation of space. After returning to Earth, the seeds were grown and compared to two control groups that had remained on Earth. The outcome of this payload convinced the seed company to fly a more advanced seed experiment in the Long Duration Exposure Facility, placed in orbit by the shuttle in 1984.



Anticipation (L to R): Dr. James Alston opened the Park Seed Co. payload as other GAS customers and GAS team member Steve Grenillo watch.